Labor Market Polarization in Latin America*

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Abstract

We construct a unified data set at the occupation level covering the last 25 years for Brazil, Chile, Colombia, Mexico, and Peru. Following Autor (2015), we compute employment growth and wage growth at the baseline income percentile level by using the employment and wage evolution of each occupation within each country. As Maloney and Molina (2019), we find no evidence of polarization in the region. This is not because technological change is not driving out the same occupations in Latin America as in richer economies but rather because these occupations were never "middle-class" jobs in the region. Finally, we also find a role for minimum wage increases which may have dampen the demand for (formal) low-skill jobs and may have provided significant income gains for low-skill workers.

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1 Introduction

The evolution of wages and employment over the last 50 years and its relationship to technological change has been the subject of much research and policy debates. In richer economies, a great majority of the literature has reached the conclusion that the patterns would be consistent with polarization, namely that workers in the middle of the income distribution have seen their employment prospects and wages negatively affected versus those at the bottom and the top of the distribution. Are these patterns likely to hold for emerging economies? If they differ, why is this occurring? Can public policies play a role? This paper attempts to answer these questions by looking at the five largest economies of Latin America.

Since the groundbreaking work of Autor, Katz, and Kearney (2006), the notion that technological change could impact workers who perform different types of tasks has been widely discussed. Focusing on tasks rather than skills allowed the authors to move away from the skill-biased technological change framework (SBTC, see for example Krusell, Ohanian, Ríos-Rull, and Violante (2000)). Under this different lens, new technologies are particularly apt at replacing routine tasks (as in Acemoglu and Restrepo (2020)), which are not necessarily performed by the least skilled of the educational or wage distribution. This would imply that technology does not necessarily replace workers with less educational attainment. Subsequent studies by Autor and Dorn (2013) and Autor (2015) highlights that, in the United States, the impact of new technology has been the most detrimental on workers who were initially in the middle of the income and skills distribution. Similar results were obtained by Goos, Manning, and Salomons (2014) for Western Europe and by Coelli and Borland (2016) for Australia. Labor market polarization, thus, would be a trademark of the evolution of work in rich economies.

Should we expect similar results for emerging and developing economies? More limited evidence has been provided. For these economies, a number of studies have provided forecasts of the risk of automatization (Frey, Osborne, and Holmes, 2016; Frey and Osborne, 2017; OECD, 2018) but most of these actually simply apply results obtained from richer economies to developing ones.[1] Even when they adjust the task component to that of a particular economy, these studies typically assume that the same technology employed in rich countries will be used and with similar consequences in poorer contexts. However, this is not guaranteed as factor prices and incentives for technology adoption are likely to differ depending on the context.

We present evidence on whether polarization has happened in emerging economies by focusing on 5 countries of Latin America: Brazil, Chile, Colombia, Mexico and Peru. These include more than two-thirds of the region's population and three-quarters of its gross domestic product (GDP). We try to replicate the methodology employed by Autor (2015) by constructing an

[1] An exception is Egana del Sol (2020).

occupation-level panel for more than 25 years for each country.[2] We then look at the employment and wage growth by occupation, depending on their initial position in the relative income distribution of each country.

Our approach differs from that of existing works about the impact of technological change in emerging or poor economies. Artuc, Christiaensen, and Winkler (2019); Cortes and Morris (2019); **?** all study Mexico and focus on directly measuring the impact of automatization. Gallego (2012) looks at the drivers of increasing returns to skill in Chile, concluding that technological forces present in the United States appear to also play a role in Chile . Our approach is more agnostic in the sense that we ask whether changes over the last 25 years have affected more strongly occupations in the middle of the income distribution, without necessarily assuming that automatization is at play. Maloney and Molina (2019), the closest paper to ours, looks at Census data from a large number of countries concentrating on the growth of broad occupational groups and relate it to the spread of robots. A similar methodology is employed by Soto (2020). We focus on fewer, more homogeneous countries in Latin America but use a much wider set of occupations. Furthermore, our focus is on the distribution of wages and not only the behavior of employment.

Our results, like that of Maloney and Molina (2019) suggest limited polarization of employment in our sample of countries. Contrasting with richer economies, we find that employment growth has occurred similarly throughout the income distribution without a pattern of "hollowing out". While employment share decreases were concentrated between the 30th and the 70th percentile in the United States, we see a increases and decreases throughout with occupations initially ranked as high as in the 80th percentile experiencing employment share decreases over the period. In terms of wage, we find that occupations that were at the bottom of the income distribution in the region grew much faster in percentage terms than those at the top of the distribution. This again shows differences with the evidence available for richer economies.

However, contrasting with the work of Maloney and Molina (2019), we find that technological transformation appears to have had a similar impact on tasks as in rich economies. We document that occupations that have a higher routine component have experienced a smaller rate of growth in all countries, although with some differences that we also detailed. When considering finer types of division of tasks, we find again a pattern that is similar to that of the United States or Europe.

Why thus do we find limited polarization in Latin America? We next highlight that what seems to be the cause is that routine occupations in the region were never "middle-income" jobs.

[2]While this approach has been criticized by Hunt and Nunn (2022), it remains the main way in which one can look at labor market polarization, particularly in settings with strong economic growth which would make the fixed wage bins approach suggested by this paper much less informative.

They were more widely spread over the full distribution. Furthermore, we also document that substantial increases in minimum wages over the period may have allowed formal low-wage workers to experience large improvements in their labor conditions over the period.

The rest of the paper is presented as followed. The first section details our methodology and the data we employed to conduct it. The second presents our basic results on polarization while the next explores the reasons for the patterns we document. Finally, the last section attempts to quantify the role of the minimum wage.

2 Methodology and Data

2.1 Methodology

Our paper wishes to explore whether individuals that were in the middle of the income distribution saw their employment prospects and income fall more in the last 25 years in Latin America than those at the lower and upper extremes. Since it is impossible in most data sets to really follow an individual, Autor (2015) employs instead the evolution in wages of fine occupational categories. We replicate his strategy in our context.

For this, we generate a panel data set by occupation and year for each country in our sample. To rank these occupations, we compute the average wage of individuals in that occupation in the base year for each country. To obtain a meaningful income measure, we restrict the sample in this case only to those who work more than 35 hours per week. We then rank the average wage of those "full-time" workers in the base year and use the fraction of all workers they represent in the base year to construct percentiles. For example, if occupation A which has the lowest wage in the base year corresponds to 1.5 percent of all workers in that year, we will assign the first percentile of the distribution of that country to occupation A. For the second percentile, we will determine that half of it corresponds to occupation A while the rest will be given to the second lowest occupation. This is done for every percentile in the original distribution. Some occupations can thus take more than one percentile and some percentiles include more than one occupation.

We then compute, in our panel data, the evolution of employment share, hours and wages by occupation and year. For each percentile, we can then compute the average growth in those variables, depending on which occupations were initially assigned to that percentile.

Formally, for each percentile p in year y, we can construct:

$$\Delta E_{py} = \sum_{o \in p} \frac{E_{opy_0}}{E_{py_0}} \left(\frac{E_{oy}}{E_y} - \frac{E_{oy_0}}{E_{y_0}} \right) \tag{1}$$

where E is employment, o represents occupations and y_0 corresponds to the base year. For each percentile, we thus obtain a notion of whether the occupations that were initially located in that part of the income distribution experienced increases or decreases in their share of total employment over time. A positive number indicates employment expansion while a negative number would be a sign that this occupation has shrank relatively to others. This can be done independently for each country.

Because results by percentiles can be somewhat noisy, we next smooth the curves by taking the moving average over 5 percentiles, using a bandwidth of 0.2 in the command "lowess" in Stata.

We replicate this strategy for wage evolution by percentile p and year y

$$\text{WageGrowth}_{py} = \sum_{o \in p} \frac{E_{opy_0}}{E_{py_0}} \left(ln(W_{oy}) - ln(W_{oy_0}) \right) \tag{2}$$

where W is wage and the rest of the variables are defined as previously. We express all monetary figures to local 2020 currency for each country, thus obtaining real wage growth. Here we employed the logarithm as a way to compute the growth to match Autor (2015) but extremely similar results are obtained when using wage growth. Larger figures for some percentiles would be indicative that real wages for occupations that were initially located in that percentile experienced larger real wage growth than others. We once more smooth the curves through a moving average methodology.

2.2 Data

We selected 5 countries in Latin America for which we were able to obtain a panel by occupations over at least the last 20 years that included consistent information regarding wages, hours and employment. So far, we have been able to collect data for Brazil, Colombia, Chile, Mexico and Peru. We employ either a labor force survey or a household survey depending on which one offers the information required for the analysis.

In Brazil, we employ the "National Household Sample Survey" (PNAD) from 1987 to 2015 (version 1981 compatible). We here present the results between 1992 and 2015, to maintain a closer comparability to the time periods of other countries. In Colombia, we obtained data from the "Gran encuesta integrada de hogares" (GEIH) from 2007 to 2020. For Chile, we use the "National Socio-Economic Characterization Survey" (CASEN) which is available from 1996 to 2020. For Mexico, we use the "National Survey of Occupation and Employment" (ENOE) available between 1992 and 2020. Finally, for Peru, we can employ the "National Households Survey" which is available between 2004 and 2020. For all countries except Brazil, we have

data up to 2020 but we employed the previous wave as our final period in order to avoid any disturbances to the labor market generated by COVID. Our main results are barely affected by this modification.

In order to generate a panel of occupations, we must harmonize the categories of occupations over time. Instead of using a unique international categorization across countries which would have been costly in terms of number of occupations that could be detailed, we focus on having a consistent set of occupations over the full period for each country. To do so, we employ crosswalks provided by the national statistical agencies. In Brazil and Chile, the categorization follows the international occupation codes CIUO-88, at three digits. For Colombia, we revert to SENA70. In Mexico, we merged categories of the SINCO to guarantee a balanced panel. Finally, for Peru, we used CNO-95. We obtain a balanced panel over the period including 82 occupations for Brazil, 118 for Chile, 82 for Colombia, 101 for Mexico and 58 for Peru. While this is less than what Autor (2015) is able to employ for the United States (around 140), it is substantially larger than previous cross-national studies for emerging economies.[3]

We then use the classification that Autor, Levy, and Murnane (2003) (ALM) provide for US occupations to generate a classification of each occupation into a different type. This classification was designed based on the job classification of the O-NET Dictionary of Occupations. Thus, they reflect the type of tasks that would be performed by these occupations in the United States, around the 1970s. While it may have been ideal to have a similar dictionary for each country in our sample, this approach allows us to use a constant metric for all countries in the sample. Furthermore, the fact that we use older US data to build these may reflect better the type of technology and environment under which these tasks are performed in Latin America.

Using this data, we first, use a binary variable to identify occupations that are routine and non-routine based. We then use the task that is most required in an occupation according to the Dictionary of Occupations that was codified by ALM for the United States to classify each occupation as: Math, Finger, DCP, STS and EHF. Occupations that are "math" are considered intensive in non-routine cognitive tasks. Occupations that are classified as "Finger" are those where routine manual tasks prevail. "DCP", short for "Direction, Control, and Planning of activities" is assigned to occupations where non-routine manegerial and interpersonal tasks dominate. "STS" which abbreviates "Set limits, tolerances or standards" is given to occupations that are routine clerical and numerical tasks. Finally. "EHF", short for "Eye, hand and foot coordination", identifies occupations where non-routine manual tasks predominate. We were usually able to easily assign a category to each occupation but in case where there was some debate, we combined crosswalks to the US categorization and the data generously provided by Autor, Levy, and

[3]For example, Maloney and Molina (2019) obtain 11 occupations for 80 total countries out of which 66 are from the developing world. **?** divides occupations in 3 skill groups only.

Murnane (2003).

3 Results

Having explained how we will conduct our analysis, we now present the baseline results for each country.

3.1 Employment polarization

We first present the results of computing equation (1) for each country in Figure 1. We are unable to see, in any of the presented figures, evidence of a U-shaped pattern as evidenced by previous researchers for richer economies. In general, employment shares of the lowest ranked occupations have decreased significantly. This is particularly marked for Colombia. These usually correspond to the agricultural sector, which had the lowest paid occupations in these countries and also the one that significantly shrunk over the period in many countries of the region. Occupations that are ranked slightly above those usually experienced an increase. We then see an oscillating pattern around 0 without a clear sense of a group of occupations increasing more than others in some countries. For Chile, Colombia, Mexico and Peru, the upper deciles experienced a greater expansion than the average but this is relatively concentrated in the percentile 90th and above. This pattern is very different than the one previously reported in this literature. Even if we were to exclude the agricultural sector, we would not observe something similar to the U-shape curve in any of the settings.

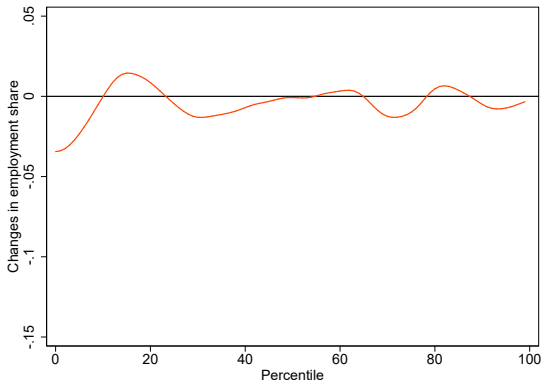
A similar picture arises when one looks at growth in hours or employment in the same sample and methodology as the one presented here. Appendix Figures A.1 and A.2 show these.

We thus do not find any sense that jobs have disappeared in the middle of the income distribution to migrate to the extremes as has been shown in richer economies.

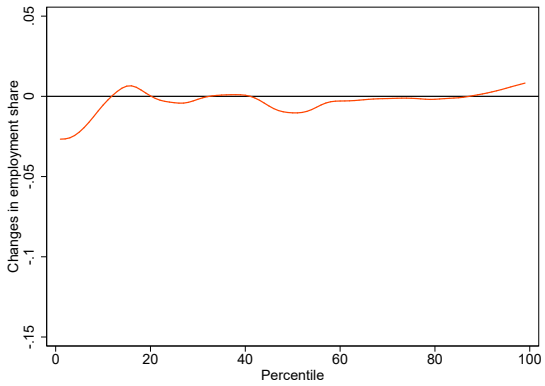
3.2 Wage polarization

What about for wages? Figure 2 presents the results of computing equation (2) for each country. In this case, we find no sign of a U-shape pattern. If anything, these figures are much more consistent in demonstrating a pattern where the lowest initial percentiles experienced much more important increases in their wages. This is very different than the patterns observed in developed economies where either the middle or the bottom percentiles are the ones experimenting the lowest growth. We must, however, remember that these graphs show increase in terms of percent. As in Lakner and Milanovic (2016)'s elephant curve, the fact that the lowest percentiles

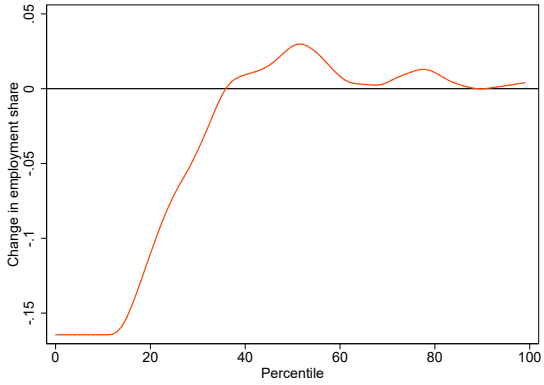
Figure 1. Evolution of employment share by percentile, by country



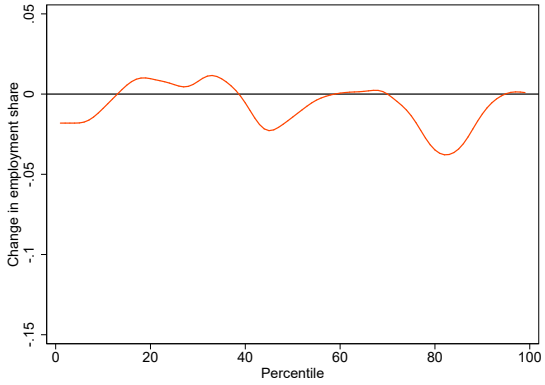
(a) Brazil, 1992-2015



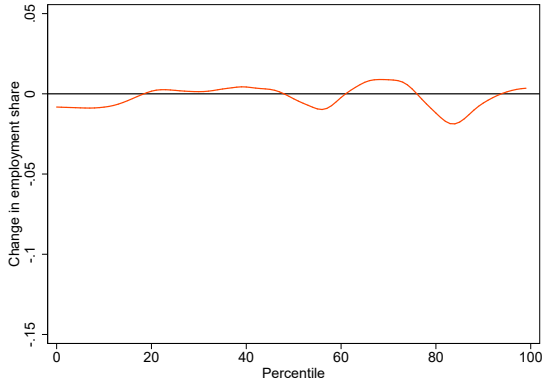
(b) Chile, 1996-2017



(c) Colombia, 1997-2019



(d) Mexico, 1992-2018

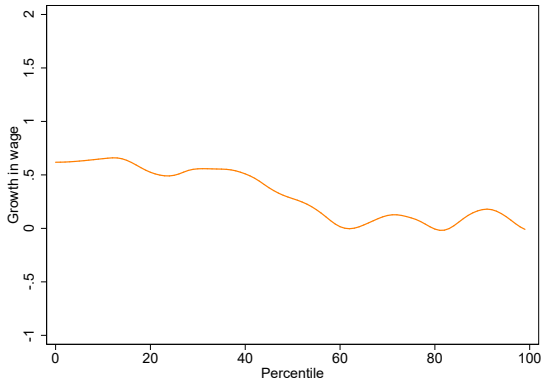


(e) Peru, 1997-2019

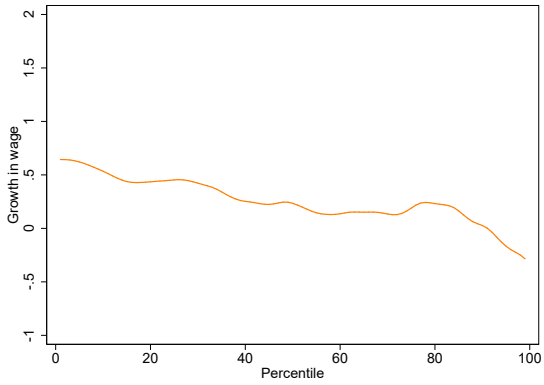
grow more in percentage does not necessarily imply that they saw the largest increases in monetary terms. Nevertheless, there is no sign in those graphs that Latin America experienced *wage* polarization. What we observe is that the occupations that were initially less well paid saw the

largest increases.

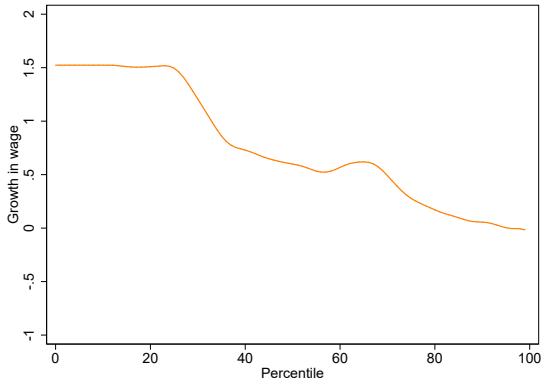
Figure 2. Change in average log real wage by percentile, by country



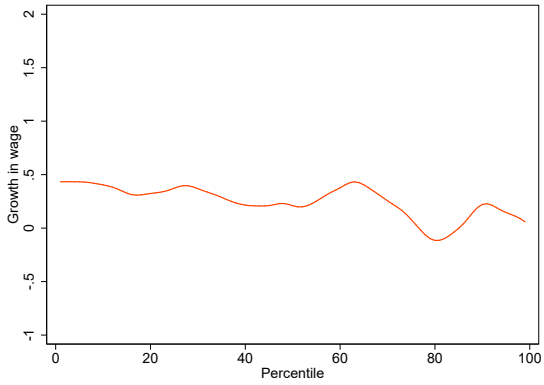
(a) Brazil, 1992-2015



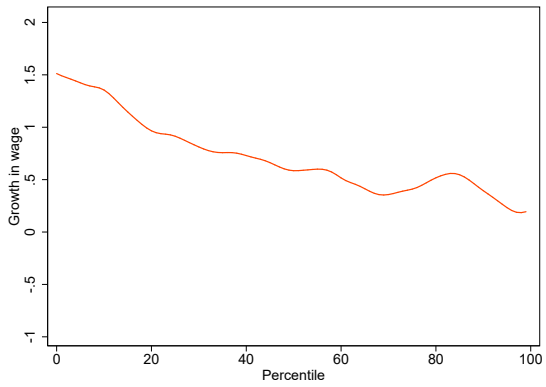
(b) Chile, 1996-2017



(c) Colombia, 1997-2019



(d) Mexico, 1992-2018



(e) Peru, 1997-2019

4 Explanations

Having shown that the patterns observed in terms of employment and wages do not indicate polarization, we now explore the potential reasons why this could be at play.

The first hypothesis would be that (task-biased) technological change, which has been argued to be an important driver of the patterns observed in richer economies, was not adopted in the same in poorer economies. Repetitive-task saving technologies could not be imported or different technologies could be purchased by local firms to respond to the needs they face.

We thus start analyzing this question by looking at the way employment and hours share of occupations of different types have evolved in the region over the period.

We first divide occupations between those that are routine or non-routine intensive. In Figure 3, we compute the change in the share of hours or employment that were in routine-intensive occupations between the end and beginning year in each of our countries. The results suggest that over our period of study, all countries experienced a strong pattern that favored employment in non-routine occupations. The fall in the share of employment and hours in routine occupations corresponds to almost 9 percentage points for Chile, Mexico and Colombia. It is only slightly smaller for Brazil at around 7 percentage point. Peru, the poorest country of our sample experienced a more modest shift but still oriented towards non-routine employment. This would suggest that new technologies did replace routine jobs in Latin America as they did in other richer economies.

When we further divide occupations into five sub-groups based on the tasks they perform, the conclusions are a bit more muted. In Figure 4, we show the change in the share of hours by occupations depending on the main type of tasks they involved. A similar graph in shown in Appendix Figure A.3 where we indicate the change in the share of employment instead with very similar results.

The increase towards non-routine analytical ("math") intensive occupations is visible in all countries. In Chile, Colombia and Peru, occupations in that categories now capture around 5 percentage point more hours than in the base year. The increase is only about 1 percentage points for Mexico and Brazil. On the other hand, the other two groups of non-routine occupations, cognitive ("DCP") and manual ("EHF") do not show as consistent of a pattern. Non-routine cognitive occupations increased their shares of hours in Chile, Mexico and Brazil but decreased them in Colombia and Peru. On the other hand, non-routine manual occupations increased significantly in Chile, Mexico and Colombia but fell in Brazil and Peru.

A similar pattern arises when looking at changes in hours share for routine-intensive occupations. Routine manual occupations ("finger") decreased in all countries, although more

Figure 3. Change in hours or employment shares of routine occupations, by country

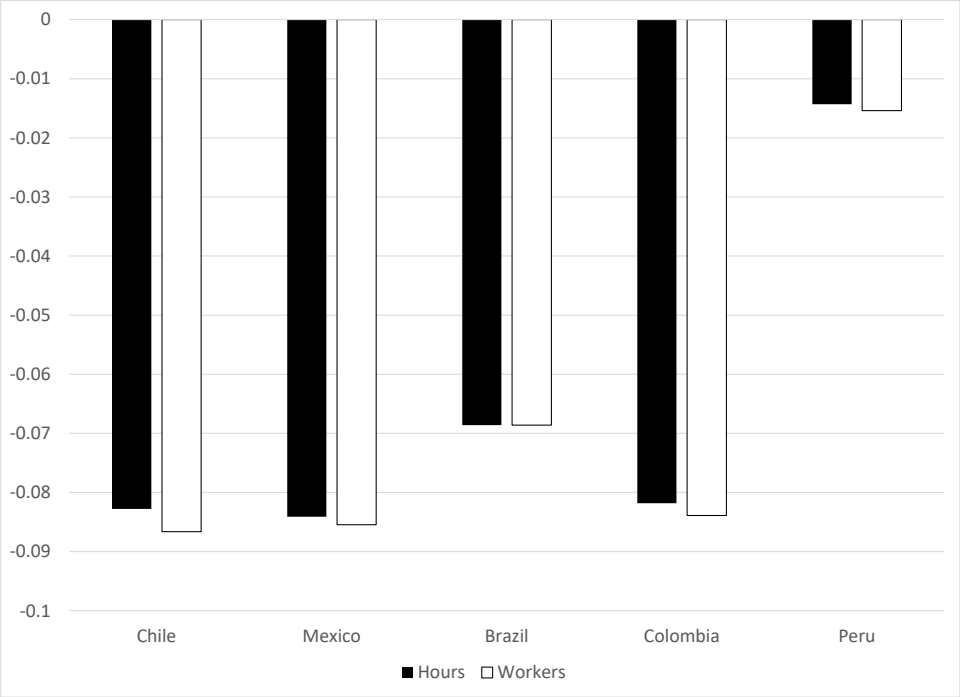
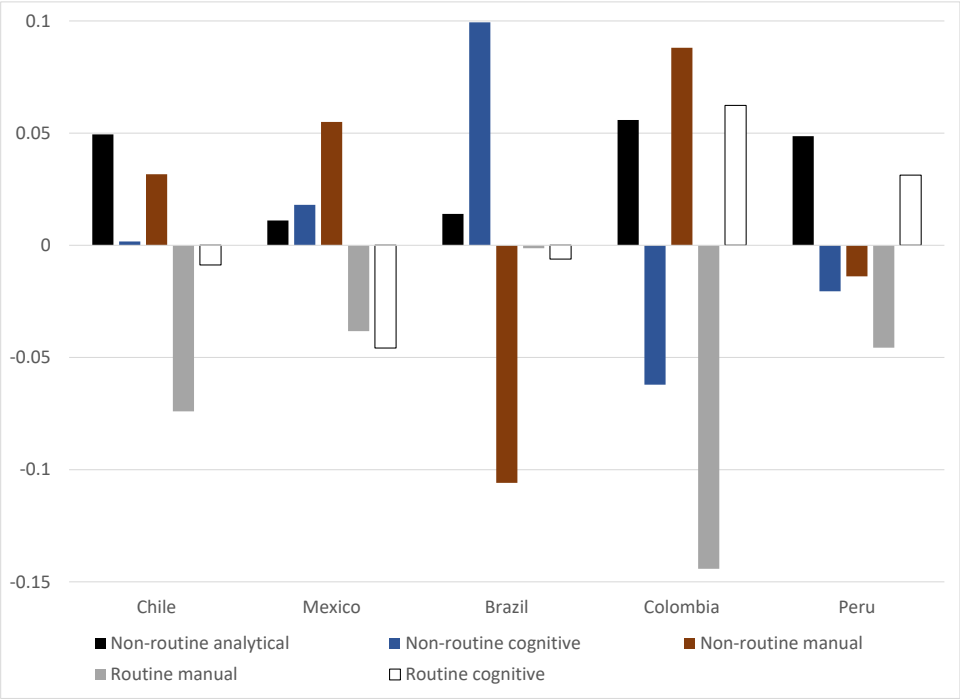


Figure 4. Change in hours shares of specific tasks, by country



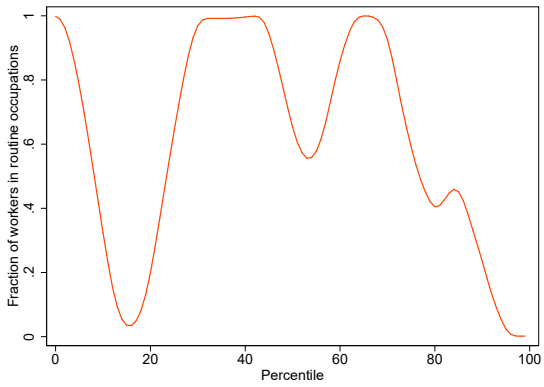
markedly so in Chile and Colombia. On the other hand, routine cognitive occupations decreased their shares of total hours in Chile, Mexico and Brazil. They increased their participation in total hours for Colombia and Peru.

Overall, these results seem to suggest that technological change also diminished the prevalence of routine occupations in Latin America as it did in richer economies. While there are some differences across countries, we appear to observe something that indicates that routine, particularly routine manual tasks have been replaced intensively by technological change in Latin America over the last 25 years. This would suggest that the absence of labor market polarization we documented previously is not due to the fact that technological was differentially adopted in the region compared to what occurred in richer countries.

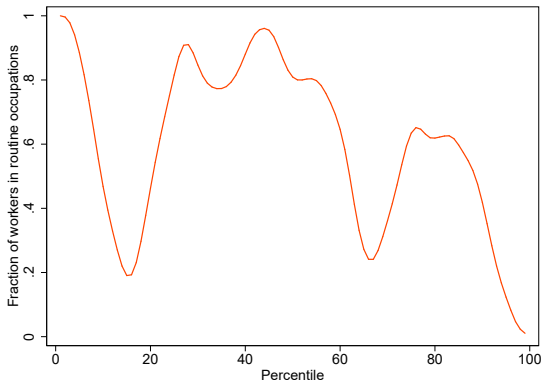
Why thus, are we not observing polarization? We next evaluate the second element required for technological change to translate into polarization which is that the occupations that are being replaced must have been initially concentrated in the middle of the income distribution. To do this, we first present the fraction of workers in a routine-based occupation by percentile

of the base year for each country in our sample. These results are presented in Figure 5 where we calculate the fraction of workers in each percentile that performs a routine occupation and smooth across percentiles as before using a moving average.

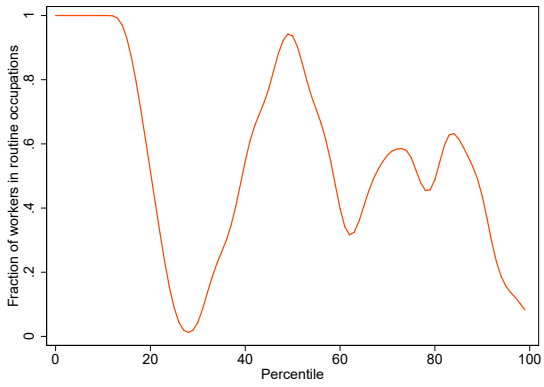
Figure 5. Fraction of workers employed in routine occupations, by percentile and country



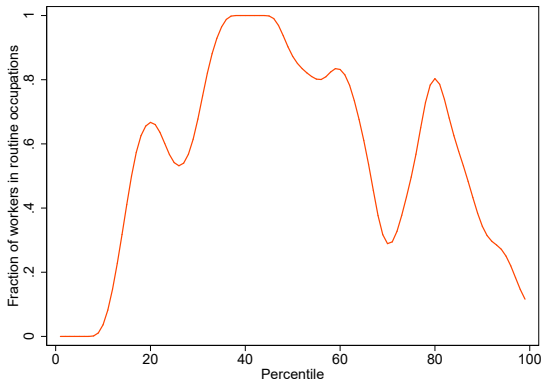
(a) Brazil, 1992



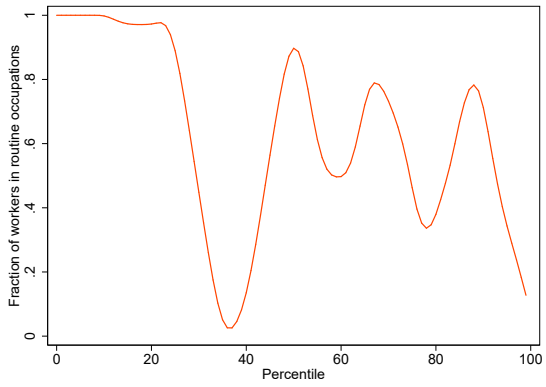
(b) Chile, 1996



(c) Colombia, 1997



(d) Mexico, 1992



(e) Peru, 1997

Our results indicate that routine occupations are prevalent in Latin America with many percentiles having all their workers in occupations that are routine-oriented. This suggests immediately that the initial distribution of occupations between Latin America and richer economies may differ. Secondly, we do not find an overwhelming pattern suggesting that middle-income occupations were particularly routine-intensive. First, occupations in the lowest point of the income distribution are the most routine-intensive, except in Mexico. This differs from the United States where the lowest-ranked occupations are non-routine service employment like those of the care industry. At the upper tail, we again find that routine occupations continue to dominate even at the 80th or 90th percentile. This again differs from what has been detailed in richer economies. This suggests that under the same type of automatization process of routine tasks, Latin America would have not necessarily experienced a polarization of employment.

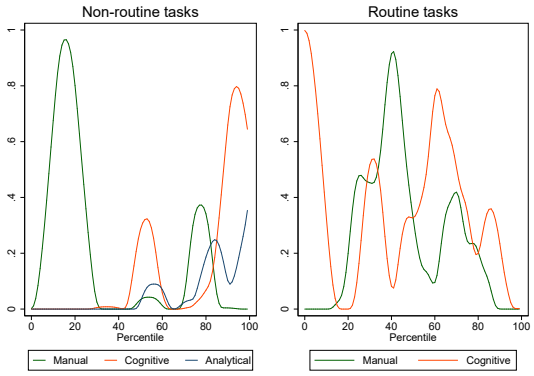
When we divide these by finer tasks, Figure 6 shows that even more indications that automatization may not predominantly perjudicate occupations that were originally in the middle of the income distribution. First, non-routine cognitive occupations, are a small fraction of total employment and concentrated in the 90th and above percentiles. Second, routine cognitive occupations can be found to represent a substantial fraction of employment up to the 90th percentile of the distribution implying that the automatization of these tasks can affect even the richer workers in the economy. On the other hand, routine manual occupations are not concentrated in the middle of the distribution but often represent the occupations of the worst paid workers in the sample. This suggests again that automatization could impact even the lowest percentiles of the income distribution in the region.

Overall, we thus conclude that it is unlikely that the absence of polarization seen in the aggregate data in Latin American countries is due to the fact that new technologies that replace routine-intensive tasks were not adopted in the region. However, it appears to be much more linked to the fact that routine-intensive occupations were never those of the middle of the income distribution in the region.

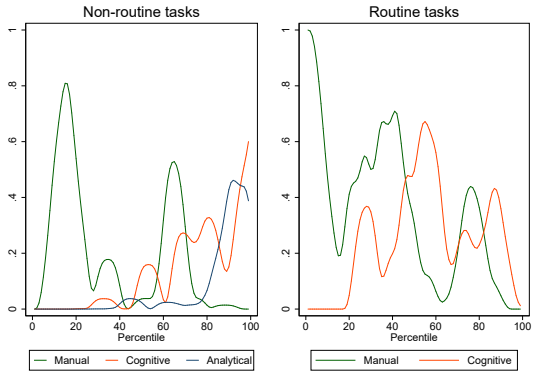
An additional factor that could be generating a difference in our results compared to richer economies is that in richer countries, trade patterns could further lead to polarization while it is unclear that this would occur in poorer settings. In richer economies, not only can routine tasks be more easily automatized but they can also potentially be more easily outsourced to other countries. In that case, both trade and technological change could influence the disappearance of routine occupations.

In Latin America, some of these outsourced tasks from richer economies could actually be "insourced". For example, many manufacturing industries moved from the United States to Mexico and in a smaller fraction Colombia and Brazil. This could thus have slowed down the fall in routine tasks compared to an economy without international trade.

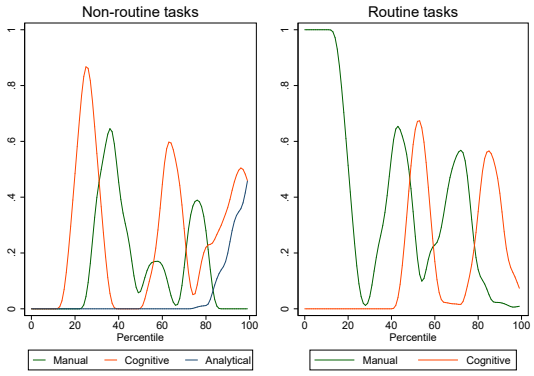
Figure 6. Fraction of workers employed occupations of each type of tasks, by percentile and country



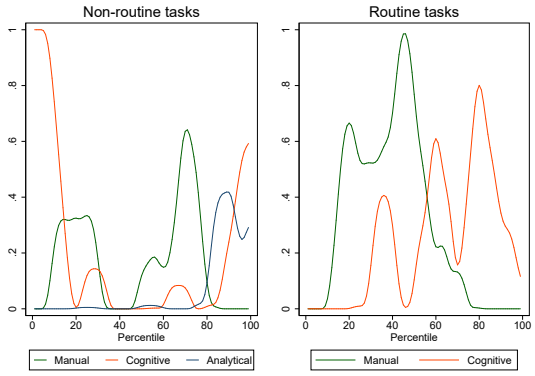
(a) Brazil, 1992



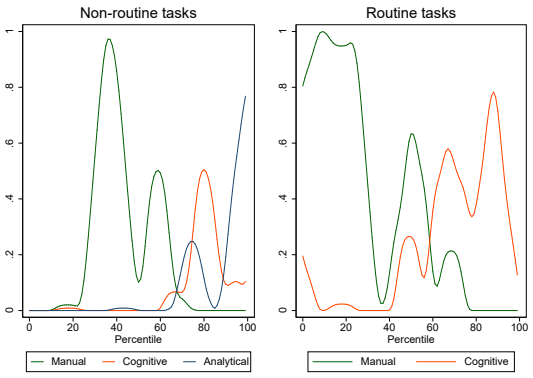
(b) Chile, 1996



(c) Colombia, 1997



(d) Mexico, 1992



(e) Peru, 1997

To explore this further, we have preliminarily divided the workers into 3 broad industry groups: primary, manufacturing and services. Primary and manufacturing sectors are much

more tradeable than the service sector which means that we can use patterns within sectors to explore the hypothesis. We thus repeat our analysis this time separating the occupations by their industry and percentile. Initial results suggest that we may see a bit more of a pattern of polarization when focusing exclusively on the service sector. However, the general tendencies are still very noisy and far from uniform between different countries. This indicative pattern would suggest that an additional reason why we may see less polarization in the region is linked to the trading patterns.

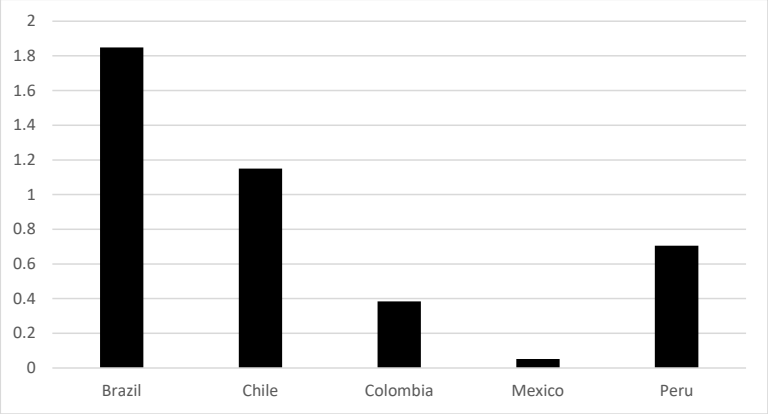
5 Minimum wage

While the section above has provided an explanation for why employment polarization has not occurred in Latin America as in richer economies, it does not explain the pattern seen in terms of wages, where occupations in the lowest percentiles have observed a higher percentage increase than those in the highest percentiles. Technological change on its own does not seem to be able to explain this as we have seen that occupations in the bottom of the income distribution were very routine-intensive and thus should have suffered wage losses.

Another difference between richer economies, particularly those in the Anglo-Saxon tradition, and Latin America is that over this period, while real minimum wages have generally stalled or fallen in richer economies, they have increased in Latin America. The following figure shows the evolution of real minimum wages in the region over our period of study. We can observe that, except in the case of Mexico, real minimum wages have increased in a remarkable way. In Brazil and Chile, minimum wages have more than doubled in real term over the period. In the case of Peru, the increase is about 75 percent while in Colombia, the minimum wage rose by around 40 percent. These represent large increases that could play a role in the evolution of wage distributions over our period.

How much could the minimum wage play a role here? We propose to employ a counterfactual exercise to bound the likely impact of this type of policy in each country. Conceptually, we want to try to measure how much would wages have grown if the only factor at play had been the secular increase in the minimum wage. To do so, in each country, we identify all individuals who earn less than what the minimum wage in the end period would have been in nominal terms in this base year. We construct a counterfactual where all of those individuals receive the new minimum wage but all those who earned above this see no change in their wage from the base period. This would, however, assume that all workers receive at least the minimum wage. Given the levels of informality in the region, this may be too strong of an assumption. We thus relax by restricting the increase only to workers who earned between the original and final minimum wage. In this case, the only workers who would benefit from an increase in

Figure 7. Minimum wage increase over the period of study, by country



the minimum wage would be those who were formal in the base year. Finally, we also allow individuals who earned a fraction of the base-year minimum wage to earn the same fraction of the new minimum wage as an alternative counterfactual. This would match the theory of the minimum wage as a "lighthouse" influencing wages of those in the informal sector although not through legal channels. All are clearly imperfect measures of how much could the minimum wage have played a role. All, for example, assume that an increase in the minimum wage does not impact in any way the wages of workers earning more than that limit. But they serve as a useful benchmark.

Figure 8 show the actual evolution of wages observed compared to that of our three different versions of counterfactual. Excluding Mexico, where minimum wages barely increased in real terms, we see that if the wages of all workers who earned less than the new minimum wage in the base year were to simply see their wages increased to that level, we would replicate (and in the case of Peru, widely exaggerate) the increase in wages experienced by workers at the bottom of the income distribution. For Brazil, Chile and Colombia, the counterfactual curves match very closely that of the actual evolution of the wages for at least the first 20 percentiles. After that point, for Brazil and Chile, the increase in wages appears to have been done to other factors but in the case of Colombia, the match continues until the highest incomes. This, is, however, assuming that all workers would receive the new minimum wage. When we restrict the benefit to workers who in the base year received at least the minimum wage, indicating some formality, we observe that for Brazil, Colombia and Peru, our counterfactual then predicts small increases

in the wages due to the policy. This is because the rate of informality in these countries being high, few workers actually benefit from an increase in the minimum wage under this scenario. This is different than in Chile where we observe a very significant share of the increase in the lowest percentiles still being explained solely by the increase in the minimum wage. Finally, when we allow informal workers to earn the same fraction of the new minimum wage as was their relative earnings in the base year, we see that for Brazil and Chile, a substantial fraction of the wage growth in the lowest percentiles could be explained by the change in the minimum wage. For Colombia and Peru, about 25 percent of the lowest percentiles wage growth could be attributed to the minimum wage increase in that case. Overall, our results suggest that in addition to technological change, labor market policies in Latin America played a significant role in increasing wage growth of the lowest percentiles which may have prevented wage polarization from occurring. Furthermore, the country where the lowest percentiles of the income distribution saw the smallest wage growth, Mexico, is indeed the only country that did not experience substantial growth in its minimum wage over the period.

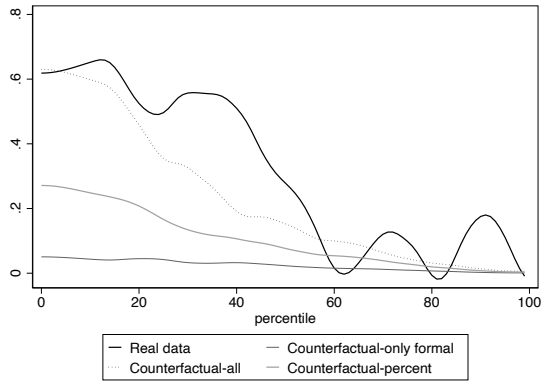
6 Conclusions

In this paper, we present the first evidence regarding labor market polarization in Latin America. We find limited evidence of the phenomena in the region. We then argue that this is not due to automatization not replacing routine occupations in the region but rather because these occupations were never "middle-income" jobs anyway. We also show that the impact of technological change on wages may have been strongly mediated by large increases in minimum wages in all the countries in our sample, except Mexico.

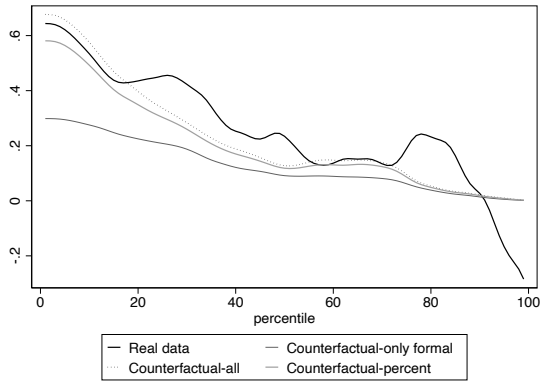
Did the minimum wage policies also impact the adoption of new technologies in the region? Is this why we do not observe an increase in lower-tail occupations as in richer economies? This is something that is left for future explorations.

The role of trade is also relevant to consider here. Do the results depend on the degree of tradeability of the industries in which workers are employed? This is something additional that we could detail in the future.

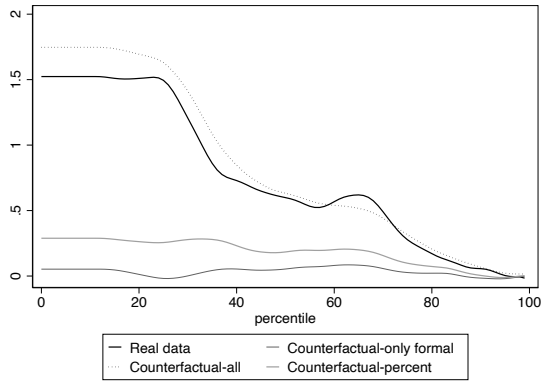
Figure 8. Change in log real wage, observed and counterfactual due to the minimum wage changes, by percentile, by country



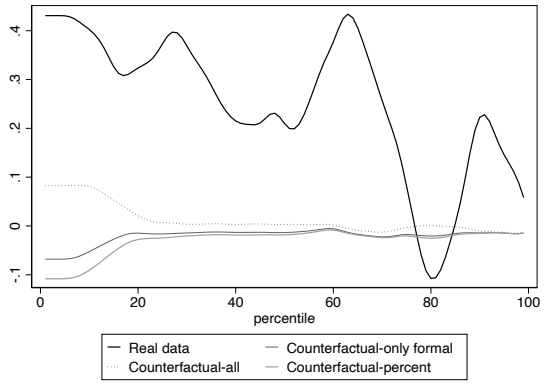
(a) Brazil, 1992-2015



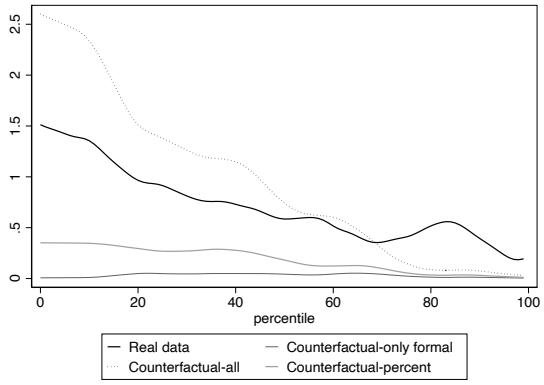
(b) Chile, 1996-2017



(c) Colombia, 1997-2019



(d) Mexico, 1992-2018



(e) Peru, 1997-2019

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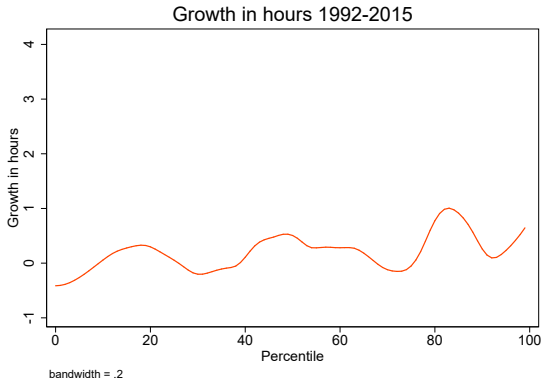
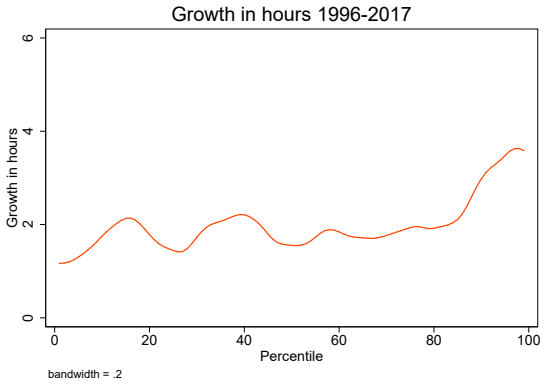
A Appendix

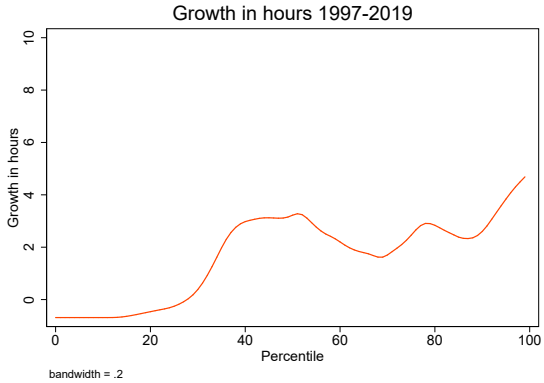
Figure A.1. Evolution of hours worked by percentile, by country



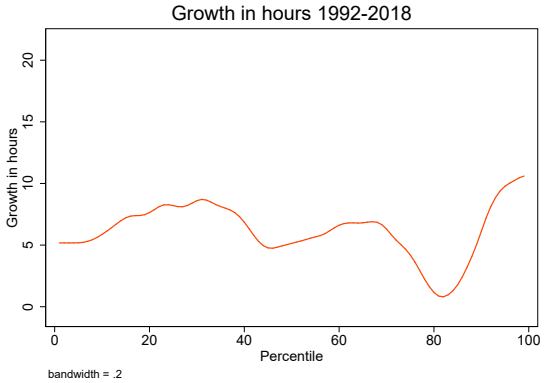
(a) Brazil, 1992-2015



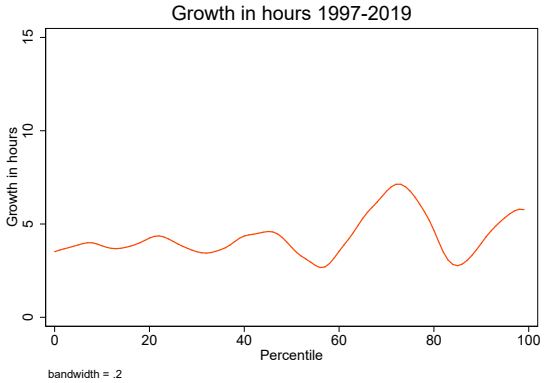
(b) Chile, 1996-2017



(c) Colombia, 1997-2017



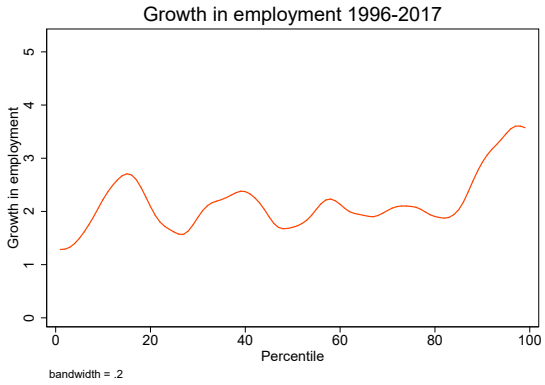
(d) Mexico, 1992-2018



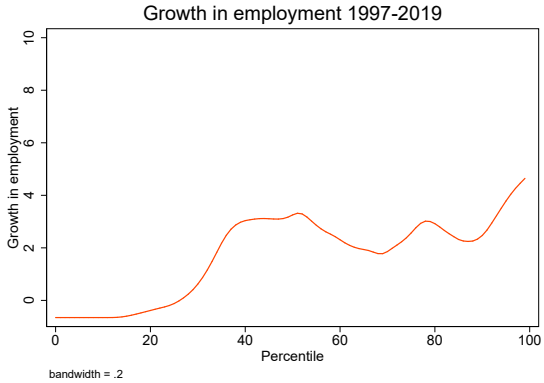
(e) Peru, 1997-2017

Figure A.2. Evolution of number of workers by percentile, by country

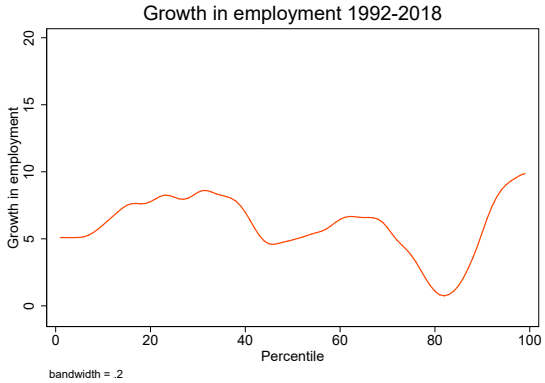
(a) Brazil, 1992-2015



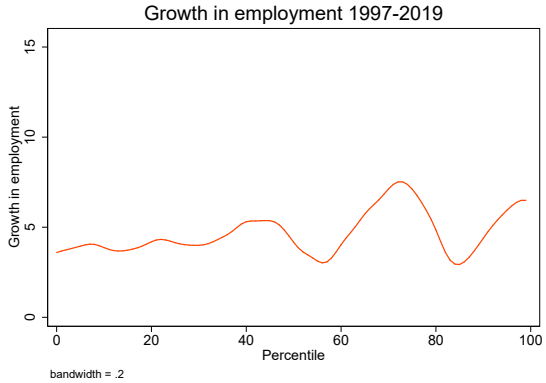
(b) Chile, 1996-2017



(c) Colombia, 1997-2017



(d) Mexico, 1992-2018



(e) Peru, 1997-2017

Figure A.3. Change in employment shares of specific tasks, by country